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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,574	02/04/2004	Fritz Spinnler	034183/273152	3807

826 7590 11/24/2006

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EXAMINER

BERTHEAUD, PETER JOHN

ART UNIT	PAPER NUMBER
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3746

DATE MAILED: 11/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/771,574	Applicant(s) SPINNLER, FRITZ	
	Examiner Peter J. Bertheaud	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>2/4/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because when reference numbers are present in the abstract they must be inside parentheses. Correction is required.

See MPEP § 608.01(b).

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 5, 7, and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 5, lines 2 and 3, it is stated that the adapter is "moveably mounted to the remainder of the piston." It is unclear how the adapter is moveable once it is mounted, i.e., is this meant to mean that it is removable or is it meant to mean that the adapter moves with, or relative, to the piston.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 2, and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Paschke 3,320,902.

Paschke discloses a rotary piston machine comprising a high pressure cylinder 9 having a central bore, a delivery piston 11 mounted for reciprocation within the central bore of the cylinder, a drive shaft 4 for driving the delivery piston and which includes an eccentric journal 7 formed thereon, and a rolling ring 8 rotatably mounted about said eccentric journal, and with said rolling ring having a cambered circumferential surface (see col. 2, line 29), and a plate-like spring element (13 and 16) positioned between a front end of the delivery piston and the rolling ring so that the spring element rests firstly on the circumferential surface of the rolling ring via a contact surface, and secondly on the front end of the delivery piston via an annular surface (see Figs. 1 and 2). Paschke further discloses that the front end of the delivery piston, is of concave configuration (see 11c' in Fig. 8), and wherein at maximum pressure loading, the region of the spring element (see 64 in Fig. 8) which lies opposite said contact surface lies substantially flat against the front end of the delivery piston (see 11c' in Fig. 8).

6. Claim 8 is rejected under 35 U.S.C. 102(b) as being anticipated by Buckwalter 2,126,985.

Buckwalter discloses a fuel injection pump comprising a main housing 1 mounting a drive shaft 3 for rotation about a rotational axis, with said main housing including a chamber 2 which extends radially from said rotational axis, a high pressure cylinder mounted to said main housing, with the high pressure cylinder 5 defining a central bore which is aligned with said radially extending chamber of said main housing and which is perpendicular to said rotational axis (see Fig. 1), a delivery piston 6 mounted for reciprocation within said bore of said cylinder and defining a front end (see

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end where 43 is attached) which faces toward said drive shaft, an eccentric journal 4 formed on said drive shaft at a location aligned with the front end of said delivery piston, a spring biasing member 35 for biasing the delivery piston in a direction toward said drive shaft, a plate-like spring element 26 positioned between the front end of the delivery piston and the eccentric journal so that the spring element rests firstly on the eccentric journal and secondly on the front end of the delivery piston, and such that upon rotation of the drive shaft about said rotational axis the delivery piston is reciprocated in the bore of said high pressure cylinder (see col. 2, lines 50-52), and said spring element being formed by the base of a bucket shaped tappet 26, with the bucket shaped tappet having an outer wall which is mounted within the chamber 2 of the main housing 1 for movement in a direction parallel to the reciprocating movement of the delivery piston (see 26 in Fig. 1).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Paschke 3,320,902 in view of Kistler 3,272,088.

Paschke discloses the invention as discussed above. However, Paschke does not disclose that the side of the spring element which faces the delivery piston is of concave configuration.

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Kistler teaches a conversion brake cylinder including a piston 30, a spring 37, and a spring element 12. Kistler further discloses that the side of the spring element which faces the delivery piston is of concave configuration 29. Kistler teaches that this would be advantageous because this configuration is adapted to receive a spherical outer surface of the piston head 31.

Therefore, it would have been obvious to one skilled in the art at the time of invention to modify the rotary piston machine of Paschke by making the side of the spring element which faces the delivery piston concave, as taught by Kistler, in order to receive a piston head with a spherical outer surface (see col. 4, lines 1-5).

9. Claims 4, 5, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paschke 3,320,902 in view of Buckwalter 2,126,985.

Paschke discloses the invention as discussed above. However, Paschke does not disclose that the front end of the delivery piston includes a radial extension; wherein the extension comprises an adapter, which is movably mounted to the remainder of the piston. Furthermore, Paschke fails to disclose that the spring element is formed by the base of a bucket shaped tappet, with the bucket shaped tappet having a circumferential wall which is mounted so as to be guided for movement in the direction of movement of the delivery piston.

Buckwalter teaches a fuel injection pump comprising a high pressure cylinder 5 having a central bore, a delivery piston 6 mounted for reciprocation within the central bore of the cylinder a drive shaft 3 for driving the delivery piston, which includes an eccentric journal 4 formed thereon; a plate-like spring element 26 positioned between a

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front end of the delivery piston and the eccentric journal 4 so that the spring element rests firstly on the eccentric journal via a contact surface, and secondly on the front end (see end where 43 is attached) of the delivery piston via an annular surface. Buckwalter also teaches that the front end of the delivery piston includes a radial extension 38, wherein the extension comprises an adapter 27, which is moveably mounted to the remainder of the piston. Buckwalter further teaches that the spring element is formed by the base of a bucket shaped tappet 26, with the bucket shaped tappet having a circumferential wall, which is mounted so as to be guided for movement in the direction of movement of the delivery piston (see col. 2, lines 50-55). Buckwalter teaches that these improvements would be advantageous because the radial extension and adapter form a driving connection between the piston 6 and the tappet 26.

Therefore, it would have been obvious to one skilled in the art at the time of invention to modify the rotary piston machine of Paschke by adding a radial extension and adapter as well as implementing a bucket shaped tappet, as taught by Buckwalter, in order to form a driving connection between the piston and the tappet (see col. 3, lines 30-33).

10. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Buckwalter 2,126,985 in view of Paschke 3,320,902.

Buckwalter discloses the invention as discussed above. However, Buckwalter does not disclose that the front end of the delivery piston is of concave configuration, and such that upon maximum loading the spring element is deformed into the concave configuration.

Paschke teaches a rotary piston machine comprising a high pressure cylinder 9 having a central bore, a delivery piston 11 mounted for reciprocation within the central bore of the cylinder, a drive shaft 4 for driving the delivery piston and which includes an eccentric journal 7 formed thereon, and a rolling ring 8 rotatably mounted about said eccentric journal, and with said rolling ring having a cambered circumferential surface (see col. 2, line 29), and a plate-like spring element (13 and 16) positioned between a front end of the delivery piston and the rolling ring. Paschke further teaches that the front end of the delivery piston 11 is of concave configuration (see 11c' in Fig. 8), and such that upon maximum loading the spring element (see 64 in Fig. 8) is deformed into the concave configuration. Paschke teaches that this would be advantageous because dead space in the assembly can be minimized.

Therefore, it would have been obvious to one skilled in the art at the time of invention to modify the fuel injection pump of Buckwalter by making the front end of the delivery piston concave so as to deform the spring element into that configuration, as taught by Paschke, in order to minimize dead space (see col. 4, lines 41-46).

11. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buckwalter 2,126,985 in view of Paschke 3,320,902, and in further view of Spinnler 6,205,980.

Buckwalter in view of Paschke discloses the invention as discussed above. However, Buckwalter in view of Paschke does not disclose a valve housing which includes a delivery chamber which communicates with the end of the delivery piston

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opposite said front end, and an inlet valve and an outlet valve both communicating with the delivery chamber.

Spinnler teaches a high-pressure delivery pump comprising a piston 9 within a cylinder 10, a driving shaft 2, eccentric journal 6, and cambered rolling ring 7 assembly which reciprocates the piston, as well as a spring 17 for biasing the piston. Spinnler further teaches a valve housing which includes a delivery chamber (see inside 11 beneath inlet valve) which communicates with the end of the delivery piston opposite said front end, and an inlet valve 12 and an outlet valve 13 both communicating with the delivery chamber. Spinnler teaches that this would be advantageous because when the piston 9 moves downwardly during a filling stroke, a delivery chamber of the high-pressure cylinder 8 is filled with the flow medium via the inlet valve 12; and when the piston 9 moves upwardly during a subsequent delivery stroke, the inlet valve 12 is closed and the pressure in the delivery chamber increases until the outlet valve 13 opens.

Therefore, it would have been obvious to one skilled in the art at the time of invention to modify the fuel injection pump of Buckwalter and Paschke by adding an inlet and outlet valve as well as a delivery chamber, as taught by Spinnler, in order to compress and deliver a flow medium (see col. 3, lines 27-39).

Conclusion


12. The prior art made of record, noted in the attached form 892, and not relied upon is considered pertinent to applicant's disclosure.

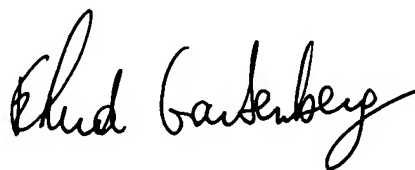
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13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter J. Bertheaud whose telephone number is (571) 272-3476. The examiner can normally be reached on M-F 9am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ehud Gartenberg can be reached on (571) 272-4828. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


PJB 11/17/2006



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